CLAIMS

1. Method for expressing a desired protein or polypeptide in a plant, in which the protein or polypeptide is expressed as a fusion with at least one starch binding domain.

2. Method according to claim 1, comprising the steps of:

a) providing a genetic construct comprising at least one nucleotide sequence encoding the desired protein or polypeptide combined with at least one nucleotide sequence encoding a starch binding domain, so that the construct encodes a fusion of the desired protein/polypeptide and the at least one starch binding domain;

b) transforming a plant with said genetic construct;

c) expressing said genetic construct in the plant.

3. Method according to claim 1 or 2, in which the plant is a plant that contains or produces starch or starch granules in at least one of its parts, including its seeds, leaves, roots (including tuburous roots), tubers, stems, stalks, fruits, grains or flowers (in particular the honey-producing parts thereof).

4. Method according any of the preceding claims, in which the plant is chosen from potato, sweet potato, cassava, pea, taro, sago, yam, banana, and/or cereals such as rice, maize, wheat and barley.

5. Method according to any of the preceding claims, in which the protein or polypeptide is heterologous with respect to the plant in which the fusion is expressed.

6. Method according any of the preceding claims, in which the protein or polypeptide is an enzyme.

7. Method according to claim 6, in which the enzyme is an enzyme that can interact with starch or starch granules, in particular an enzyme that can convert, modify, alter, degrade or otherwise influence the starch, the starch granule or the structure or interactions thereof.

8. Method according to any of claims 1-5, in which the desired protein or polypeptide is a receptor such as an estrogen receptor or a plant hormone receptor, or a structural protein such as a protein "zipper".

9. Fusion of at least one desired protein or polypeptide and at least one starch binding domain, as expressed in and/or present in a plant or in any part of a plant, including its seeds, leaves, roots (including tuburous roots), tubers, stems, stalks, fruits, grains or flowers (in particular the honey-producing parts thereof).

10. Genetic construct suitable for transforming a plant, comprising at least one nucleotide sequence encoding a desired protein or polypeptide combined with at least one nucleotide sequence encoding a starch binding domain, so that the construct encodes a fusion of the desired protein/polypeptide and the at least one starch binding domain.

11. Method for providing a plant that expresses a fusion according to claim 9, comprising at least one step of:

a) transforming plant with a genetic construct according to claim 10, such that said genetic construct is expressed in the plant or at least in part thereof;

and optionally further comprising at least one step of:

b) providing descendants and/or further generations of the thus transformed plant, for instance via sexual or asexual multiplication, including crossing and/or other breeding techniques.

12. Method according to claim 11, in which the plant is a plant that contains or produces starch or starch granules in at least one of its parts, including its seeds, leaves, roots (including tuburous roots), tubers, stems, stalks, fruits, grains or flowers (in particular the honey-producing parts thereof).

13. Plant, transformed with a genetic construct according to claim 9, or a descendant of such a plant.

14. Plant that expresses a fusion according to claim 9, obtainable by the method of claim 10.

15. Seeds, tubers, seedlings or other cultivating material of a plant according to claim 13 or 14.

16. Method for providing a protein or polypeptide with affinity for starch and/or starch granules, and/or for increasing the affinity of a protein or polypeptide for starch and/or starch granules, comprising expressing the protein or polypeptide in a plant as a fusion with at least one starch binding domain.

17. Method according to claim 16, comprising the steps of:

a) combining a nucleotide sequence encoding the protein or polypeptide with at least one nucleotide sequence encoding a starch binding domain, so as to provide a genetic construct encoding a fusion of the protein or polypeptide and the at least one starch binding domain;
b) transforming a plant with said genetic construct;
c) expressing said genetic construct in the plant

18. Method for producing a complex of at least one protein or polypeptide and a starch granule, comprising at least one step of:

a) expressing the protein or polypeptide as a fusion with at least one starch binding domain, in a plant that contains or forms starch granules;

and optionally comprising a further step of:

b) isolating the protein or polypeptide from the plant or any part thereof as a complex of the fusion and the starch granule.

19. Complex, comprising a fusion of a protein or polypeptide fused to at least one starch binding domain, associated with a starch granule.

20. Method for providing a plant that can produce a complex according to claim 19, comprising at least the step of:

a) transforming a starch granule producing plant with a genetic construct according to claim 10, such that said genetic construct is expressed in the plant or at least part thereof;

and optionally further comprising at least a further step of:

b) providing descendants and/or further generations of the thus transformed plant, for instance via sexual or asexual multiplication, including crossing and/or other breeding techniques.

21. Plant that produces a complex according to claim 18, and that is obtainable via the method of claim 20, or any descendant thereof.

22. Seeds, tubers, seedlings or other cultivating material of a plant according to claim 21.

23. Method for providing a plant that contains or produces a modified starch and/or modified starch granules, comprising at least one step of:

a) transforming a starch producing plant, in particular a starch granules producing plant, with a genetic construct comprising at least one nucleotide sequence encoding an enzyme that can interact with starch and/or starch granules and at least one nucleotide sequence encoding a starch binding domain, such that said genetic construct is expressed in the plant or at least part thereof;

and optionally further comprising at least a further step of:

b) providing descendants and/or further generations of the thus transformed plant, for instance via sexual or asexual multiplication, including crossing and/or other breeding techniques.

24. Plant that produces modified starch or starch granules, and that is obtainable via the method of claim 23, or any descendant thereof.

25. Seeds, tubers, seedlings or other cultivating material of a plant according to claim 24.

26. Method for producing a modified starch and/or modified starch granules, comprising at least one step of:

a) cultivating a transformed plant that produces a modified starch and/or modified starch granules according to claim 24, or a descendant thereof;

and optionally comprises at least one further step of:

b) isolating the modified starch or starch granules from the transformed plant or any part thereof, including its seeds, leaves, roots (including tuburous roots), tubers, stems, stalks, fruits, grains or flowers (in particular the honey-producing parts thereof).

27. Method for producing a modified starch and/or modified starch granules, comprising at least one step of:

a) cultivating a transformed plant that expresses a fusion of at least one starch binding domain and at least one enzyme that can interact with starch (granules), in which the starch (granule) and the fusion preferably form a complex;

b) harvesting the plant and/or any part of said plant that contains starch (granules) and the fusion, such as the seeds, leaves, roots (including tuburous roots), tubers, stems, stalks, fruits, grains or flowers (in particular the honey-producing parts thereof);

c) subjecting the plant and/or plant material, or any fraction or preparation obtained therefrom that contains the starch (granule) and the fusion, to conditions such that the enzyme can interact with the starch (granule) to provide modified starch or starch granules;

and optionally comprises at least one further step of:

d) isolating the modified starch or starch granules thus obtained.

28. Modified starch or starch granules, obtained via the method of claim 26, obtained from a plant according to claim 24 or any part thereof, or obtained via the method of claim 27.

29. Method for providing a plant that contains or produces a modified starch and/or modified starch granules, comprising at least one step of:

a) transforming a starch producing plant, in particular a starch granules producing plant, with a genetic construct comprising at least one nucleotide sequence encoding a starch binding domain, such that said genetic construct is expressed in the plant or at least part thereof;

and optionally further comprising at least one step of:

b) providing descendants and/or further generations of the thus transformed plant, for instance via sexual or asexual multiplication, including crossing and/or other breeding techniques.

30. Plant that produces modified starch or starch granules, obtainable via the method of claim 29, or any descendant thereof.

31. Seeds, tubers, seedlings or other cultivating material of a plant according to claim 30.

32. Method for producing a modified starch and/or modified starch granules, comprising at least one step of:

a) cultivating a transformed plant that produces a modified starch and/or modified starch granules according to claim 27, or a descendant thereof;

and optionally further comprises at least one step of:

b) isolating the modified starch or starch granules from the transformed plant or from any part thereof, including its seeds, leaves, roots (including tuburous roots), tubers, stems, stalks, fruits, grains or flowers (in particular the honey-producing parts thereof)

33. Modified starch or starch granules, obtained via the method of claim 32, or obtained from a plant according to claim 30 or any part thereof.

34. Modified starch according to claim 33, being an essentially amylose-free starch or starch granule.

35. Genetic construct suitable for transforming a plant, comprising at least one nucleotide sequence encoding a starch binding domain.

36. Bacterium, virus or other organism suitable for transforming a plant, containing a genetic construct according to claim 10 or 35, and preferably capable of transferring said construct into a plant.